

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for measuring mass from a change in oscillation frequency of a mass-measuring piezoelectric vibrating reed, the method comprising:

oscillating the piezoelectric vibrating reed with an oscillator circuit;

generating an output signal from the oscillator circuit that indicates an oscillating frequency of the vibrating reed;

inputting an input the output signal from the piezoelectric vibrating reed oscillator circuit and an output signal from a voltage-controlled oscillator to a phase comparator of a phase[[s]] lock loop circuit; and

determining the oscillation frequency of the piezoelectric vibrating reed based on an output of a loop filter in the phase lock loop circuit.

2. (Currently Amended) A measurement-signal output circuit for outputting a signal for detecting an oscillation frequency of an oscillator circuit which oscillates a mass-measuring piezoelectric vibrating reed, the measurement-signal output circuit comprising:

a piezoelectric vibrating reed;

an oscillator circuit that oscillates the vibrating reed and outputs a signal indicative of the oscillating frequency of the vibrating reed;

a voltage-controlled oscillator oscillatable at an oscillation frequency of the piezoelectric vibrating reed;

a phase detector which obtains the difference in phase between an output signal from the voltage-controlled oscillator and ~~an~~ the output signal from the oscillator circuit; and

a loop filter having an output end connected to the voltage-controlled oscillator and an output terminal and outputting a voltage according to the difference in phase obtained by the phase detector.

3. (Currently Amended) The measurement-signal output circuit according to claim 2, wherein the piezoelectric vibrating reed has a sensitive membrane on an exciting electrode on one surface thereof ~~and is used for measurement in~~ that is in contact with liquid.

4. (Currently Amended) The measurement-signal output circuit according to claim 2, wherein the piezoelectric vibrating reed has a sensitive membrane on an exciting electrode on at least one of two surfaces thereof ~~and is used for measurement in~~ that is in contact with air.

5. (Previously Presented) A measuring apparatus comprising the measurement-signal output circuit according to claim 2.

6. (Previously Presented) A measuring apparatus comprising the measurement-signal output circuit according to claim 3.

7. (Previously Presented) A measuring apparatus comprising the measurement-signal output circuit according to claim 4.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: _____

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By: _____

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